



PATENT
Attorney Docket No. 210091

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Hinken et al.

Art Unit: 2862

Application No. 09/806,739

Examiner: Snow, Walter E.

Filed: February 1, 2002

For: TESTING DEVICE FOR DETECTING AND
LOCALIZING MATERIAL
INHOMOGENEITIES

**AMENDMENTS TO THE CLAIMS IN RESPONSE TO
OFFICE ACTION DATED SEPTEMBER 24, 2002**

16. (Amended) The testing device of claim [12] 15, wherein the holder is connected to a rotational drive for rotating the sample.

17. (Amended) The testing device of claim [12] 15, wherein the measuring sensors comprise a Squid sensor.

18. (Amended) The testing device of claim [14] 17, wherein the Squid sensor is a Squid magnetometer.

19. (Amended) The testing device of claim [14] 17, wherein Squid sensor comprises a Squid gradiometer.

20. (Amended) The testing device of claim [13] 16, wherein the measuring sensors comprise a Squid sensor.

21. (Amended) The testing device of claim [17] 20, wherein the Squid sensor is a Squid magnetometer.

22. (Amended) The testing device of claim [17] 20, wherein Squid sensor comprises a Squid gradiometer.

24. (Amended) The method of claim [20] 23, wherein the sample is rotated.

25. (Amended) The method of claim [20] 23, wherein from the polarity of the measuring signal and the direction of the temperature gradient one may infer the type of homogeneity.

26. (Amended) The method of claim [21] 24, wherein from the polarity of the measuring signal and the direction of the temperature gradient one may infer the type of homogeneity.

27. (Amended) The method of claim [20] 23, wherein for the improved localization and shape determination of the inhomogeneity the temperature profile in the sample is differently set in subsequent measurements.

28. (Amended) The method of claim [21] 24, wherein for the improved localization and shape determination of the inhomogeneity the temperature profile in the sample is differently set in subsequent measurements.

29. (Amended) The method of claim [22] 25, wherein for the improved localization and shape determination of the inhomogeneity the temperature profile in the sample is differently set in subsequent measurements.

30. (Amended) The method of claim [23] 26, wherein for the improved localization and shape determination of the inhomogeneity the temperature profile in the sample is differently set in subsequent measurements.

31. (Amended) The method of claim [20] 23, wherein, in subsequent measurements, the magnetic field is measured at different distances to the sample.

32. (Amended) The method of claim [20] 23, wherein one simultaneously measures with several measuring sensors.



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**PENDING CLAIMS RESPONSE TO OFFICE ACTION
DATED SEPTEMBER 24, 2002**

15. A testing device for detecting and localising material inhomogeneities in electrically conductive samples comprising a holder for the sample to be tested, a temperature setting device for forming a temperature profile in the sample, and at least one measuring sensor for the contactless measurement of the magnetic field outside the sample, wherein several measuring sensors are provided at a different distance to the sample.

16. The testing device of claim 15, wherein the holder is connected to a rotational drive for rotating the sample.

17. The testing device of claim 15, wherein the measuring sensors comprise a Squid sensor.

18. The testing device of claim 17, wherein the Squid sensor is a Squid magnetometer.

19. The testing device of claim 17, wherein Squid sensor comprises a Squid gradiometer.

20. The testing device of claim 16, wherein the measuring sensors comprise a Squid sensor.
21. The testing device of claim 20, wherein the Squid sensor is a Squid magnetometer.
22. The testing device of claim 20, wherein Squid sensor comprises a Squid gradiometer.
23. A method for detecting and localising material inhomogeneities in electrically conductive samples, wherein the sample is brought to a predetermined temperature profile and the magnetic field outside the sample is contactlessly measured, wherein the magnetic field outside the sample is measured with several measuring sensors which are provided at a different distance to the sample.
24. The method of claim 23, wherein the sample is rotated.
25. The method of claim 23, wherein from the polarity of the measuring signal and the direction of the temperature gradient one may infer the type of homogeneity.
26. The method of claim 24, wherein from the polarity of the measuring signal and the direction of the temperature gradient one may infer the type of homogeneity.
27. The method of claim 23, wherein for the improved localization and shape determination of the inhomogeneity the temperature profile in the sample is differently set in subsequent measurements.
28. The method of claim 24, wherein for the improved localization and shape determination of the inhomogeneity the temperature profile in the sample is differently set in subsequent measurements.

29. The method of claim 25, wherein for the improved localization and shape determination of the inhomogeneity the temperature profile in the sample is differently set in subsequent measurements.

30. The method of claim 26, wherein for the improved localization and shape determination of the inhomogeneity the temperature profile in the sample is differently set in subsequent measurements.

31. The method of claim 23, wherein, in subsequent measurements, the magnetic field is measured at different distances to the sample.

32. The method of claim 23, wherein one simultaneously measures with several measuring sensors.